

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 040067 AM	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/EP2005/002556	International filing date (day/month/year) 10/03/2005	(Earliest) Priority Date (day/month/year) 20/03/2004	
Applicant DEGUSSA AG			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 08 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box II).

3. **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. _____

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - in written format
 - in computer readable form
 - c. time of filing/furnishing
 - contained in the international application as filed
 - filed together with the international application in computer readable form
 - furnished subsequently to this Authority for the purpose of search
2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5 (all partially)

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: Claims 1-5 (all partially)

Degenerate primers of SEQ. ID. Nos. 1, 5 and 9 and processes for preparing nitrile hydratases using said degenerate primer.

Inventions 2-3: Claims 1-5 (all partially).

Degenerate primers of claim 1 (except that of SEQ. ID. No.: 1), and processes for preparing nitrile hydratases using said degenerate primers (each primers defines a different invention) grouped as follows:

Invention 2: SEQ. ID. Nos: 2, 3, 6, 7, 10 and 11.

Invention 3: SEQ. ID. NOS: 4, 8 and 12.

Inventions 4-28: Claims 6-11 (all partially)

Protein sequences of SEQ. ID. Nos.: 38-86 (even numbers), nucleic acids thereof of SEQ. ID. Nos: 37-85 (odd-numbers), nitrile hydratases constructed with said protein sequences, and expression systems and uses of said proteins and nucleic acids (Each protein sequence and its nucleic acid constitutes a different invention).

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LORENZ PATRICK ET AL: "Screening for novel enzymes for biocatalytic processes: Accessing the metagenome as a resource of novel functional sequence space." CURRENT OPINION IN BIOTECHNOLOGY, vol. 13, no. 6, December 2002 (2002-12), pages 572-577, XP002330804 ISSN: 0958-1669 the whole document -----	1-5
A	LORENZ P ET AL: "Metagenome: A challenging source of enzyme discovery" JOURNAL OF MOLECULAR CATALYSIS. B, ENZYMATIC, ELSEVIER, AMSTERDAM, , NL, no. 19-20, 2 December 2002 (2002-12-02), pages 13-19, XP002319921 ISSN: 1381-1177 the whole document -----	1-5
A	DATABASE EMBL 'Online! 12 February 1992 (1992-02-12), "R.rhodochrous gene for L-NHase" XP002331764 retrieved from EBI accession no. EM_PRO:RRLNHASE Database accession no. RRLNHASE the whole document -----	1-5
A	DATABASE EMBL 'Online! 19 March 1997 (1997-03-19), "Pseudomonas putida P38K, amidase, nitrile hydratase alpha subunit, nitrile hydratase beta subunit, and P14K genes, complete cds." XP002331765 retrieved from EBI accession no. EM_PRO:PPU89363 Database accession no. PPU89363 the whole document -----	1-5
P, X	LOPES LOURENCO PEDRO MIGUEL ET AL: "Searching for nitrile hydratase using the consensus-degenerate hybrid oligonucleotide primers strategy" JOURNAL OF BASIC MICROBIOLOGY, vol. 44, no. 3, 2004, pages 203-214, XP009048598 ISSN: 0233-111X the whole document -----	1-5

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Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 9712964	A 10-04-1997	AU 7514896 A	CA 2233868 A1	28-04-1997
		EP 0853663 A1		10-04-1997
		JP 11513255 T		22-07-1998
				16-11-1999